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ABSTRACT

This study addresses itself to the development of a valid method for identifying a high-risk group of preschool children. The design used is longitudinal and attempts to relate early child and parent behavior patterns to various outcome measures as the child grows older. This paper reports the behavior patterns of a group of two-year-olds and how their parents are responding to them, and attempts to predict how these early patterns will relate to later measures. The sample was recruited from families receiving their pediatric care from two groups of pediatricians practicing private medicine. Sample requirements included: (1) The child must be free of chronic illness or disability, and between the ages of 21 and 27 months inclusive at the time of the home interview; (2) Approximately equal numbers of boys and girls were to be recruited; (3) The families were to have both parents present, be economically self-sufficient, and the mother not working full time; and (4) The sample should include as broad a spectrum of childrearing practices as possible. For each person (mother, father, child) the individual items and summary scores describing the behavior of the person in question were factored and various solutions rotated and examined until a solution was chosen as likely to be most useful for predictive purposes and open to verification by direct observation. Factors chosen for study included: (1) aggressive resistant, (2) toilet training and bedtime problems, (3) approach, and (4) withdraw. (CK)

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EARLY PATTERNS OF PARENT AND CHILD BEHAVIOR: CAN WE IDENTIFY HIGH AND LOW RISK COMBINATIONS?

The concept of preventing behavioral and emotional disturbances in primary and secondary school aged children through a program of early recognition and modification of preschool behavior patterns is especially appealing because:

1. Children entering first grade have a high incidence of behavioral and emotional problems.[1,2] These problems tend to persist and there is a shortage of qualified mental health professionals to deal with them.[3,4]

2. The evidence available indicates there is reasonable continuity between preschool behavior patterns and later behavior patterns.[5]

3. Preschool behavior patterns are rarely internalized and can be modified in a relatively short period of time through behavior modification or other brief intervention approaches that can be taught to parents, teachers, physicians, nurse associates and other "Lay" persons.[6-9]

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What is needed to put such a program in action, however, is a reliable and valid method for identifying a high risk group of children in the preschool age period and a program of intervention that, when compared to a control group, produces better results than no program at all.

This study addresses itself to the first need: the development of a valid method for identifying a high risk group of pre-

school children. The design outlined below is longitudinal and attempts to relate early child and parent behavior patterns to various outcome measures as the child grows older. This paper reports the behavior patterns of a group of two year olds and how their parents are responding to them and attempts to predict how these early patterns will relate to later measures.

Age 2	→	Age 4 or 5	→	Ages 8 to 10
Child Behavior Patterns		Nursery School		Self Concept
Parent Behavior Patterns		or		Peer Reputation
		Kindergarten		Achievement
		Behavior Patterns		Teacher Ratings
				Symptoms

Methods

Subjects:

In order to relate our findings to pediatric practice and to simplify follow-up procedures the sample was recruited from families receiving their pediactric care from two groups of pediatricians practicing private medicine in the suburbs of Rochester. When a mother brought her child in for the regular two year old well child visit she was given a paper describing the study. Several days later a research assistant called to answer any questions, see if the family met sample requirements and, if they did, invite their participation in the study.

Sample requirements were as follows:

1. The child must be free of chronic illness or disability and between the ages of 21 and 27 months inclusive at the time of the home interview.

2. Approximately equal numbers of boys and girls were to be recruited.

3. The families were to have both parents present, be economically self sufficient and the mother not working full time.

4. Within this relatively homogeneous sample an attempt was made to include as broad a spectrum of childrearing practices as possible. (Frequency of spanking was found to be a useful rough screening device for this purpose.)

Table 1 and 2 summarize the sample characteristics and compares some items with similar measures from a random sample of preschool children from the same geographic area obtained as part of another study.

TABLE ONE AND TWO ABOUT HERE

As can be seen from this table, eighty one percent of the families invited to participate agreed to do so. In comparison with the general population in the same areas, the participants are better educated but the religious composition is roughly similar. This tendency for volunteer participants to have more education than non participants has been noted by others.

Our sample is also biased in terms of over representation of mothers spanking their child once a week or less. In order to insure adequate numbers of these "low spankers" we recruited every family reporting these frequencies and meeting sample requirements while taking every other family with a more common spank frequency of (several times a week to one or more times a day).

Finally, since the participating physicians had some control over who was invited to participate in the study, a check was made to see if the sample was over-represented with children thought to have problems. ~~Nine~~ 8 percent of the children whose families were invited to participate were identified by the physician as having a behavioral or emotional problem. How this would compare with a random sample of two year olds is unknown, but at least 91% of the sample was thought to be free of significant problems by the family physician.

Measures

The unreliability of retrospective reports of behavior, the distortions produced when parents are asked to interpret rather than describe their own or their child's behavior, and the wish to identify specific patterns that could be open to change through behavior modification or other brief intervention methods led to the development of a descriptive, semi-structured home interview which concentrated on current parent and child behavior.[10]

The interview is conducted with the mother in her home by a trained lay person (housewife) and takes about an hour and a half to complete. The bulk of the interview consists of identifying a number of common two year old behaviors such as getting into things, having a temper outburst, etc. The mother is asked to pick from a frequency card (8=4 or more times a day; 1=less than once a month) how often her child displays each kind of behavior and what she usually says and does when it occurs. Emphasis is placed on getting actual descriptions of handling including some specific examples of what words the mother might use. For a number of situations the mother is also asked to describe her back up response when the initial handling is unsuccessful. The mother is also asked to rate the intensity of each response on a five point scale (1=calm, matter of fact; 5=yelling loudly or very irritated)

Several Summary Scores have been derived from these descriptions and are as follows:

1. Use of "Unmodified Power" (UMP Score)

The UMP Score is a measure of authoritarianism and is the percentage of situations handled with orders and commands unaccompanied with reasons or other modifiers, non objective scolding ("only bad boys do that!") or use of arbitrary punishment to compel compliance.

2. Use of Physical Punishment (PP Score)

This score is based on adding the mother's reported frequency of spankings, use of something other than the hand to

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spank with, usual number of swats and similar items into an index score.

3. Compliance Score:

This is based on adding the frequency scores given by the mother to describe her compliance with such child behaviors as getting into things, resisting bedtime, being stubborn about something, having a temper tantrum, whining and nagging.

4. Protective Score

This score is based on a weighted sum of items used to identify protective parent-child relationships in clinical settings such as how often the mother feeds the child with a spoon leaves the child with a sitter, stays with the child until asleep at bedtime or sleeps with the child, allows peer contact, and takes special precautions about the child's health.

Finally, at the end of the interview each mother was given a questionnaire to fill out which consisted of a number of attitudinal questions and twenty descriptive statements about child behavior and a four point scale on which the mother was to rate how descriptive these statements were of her particular child. (4=very; 1=not at all)

Factor Analysis and Factor Scores

For each person (mother, father, child) the individual items and summary scores describing the behavior of the person in question were factored (principal components) and various

solutions rotated (varimax) and examined until a solution was chosen (by clinical judgement) as likely to be most useful for predictive purposes and open to verification by direct observation. Factor scores for each individual were computed with the regression equation supplied as part of the SPSS computer program package that is now widely available."

Results

Parent Behavior Patterns

The three factor solution selected to summarize the mother's child rearing behavior is as follows:

FACTOR I Negative Contact		FACTOR II Positive Contact		FACTOR III Protection and Compliance	
PP Score	.81	F. Praise	.71	Protective Score	.59
UMP Score	.72	F. Explain	.69	Compliance Score	.52
Intensity	.64	F. Hug	.58	Time Play	.46
F. Yell	.56	F. Play with	.52	Time Teach	.43

A high score on Factor I, for example, indicates a response pattern characterized by frequent use of physical punishment and other authoritarian methods of control delivered with a high intensity.

A three factor solution was also selected to describe the father's child rearing approach. Factors I and II are similar to the mother's and describe use of positive and negative contact. The third factor appears to be a measure of harmony or similarity between the parents general approach.

FACTOR III: DISAGREE

Extent father's approach differs from mother's	.84
Frequency father and mother disagree	.61
Availability of the father	.41

These parent measures are similar but not identical to those reported from other studies.[12-15]

The intercorrelations between the father and mother variable are shown in table 3.

TABLE 3 ABOUT HERE

The significant association between the mother's and father's use of positive and negative contact could be an artifact because both measures are based on mother's reports, however, Becker et al interviewed fathers and mothers separately and came up with a similar a association and concluded: "All in all these correlations suggest that that like begets like or that over the years of a marriage there is considerable convergence of parental attitudes and behavior toward their children."[16]

Child Behavior Patterns

Separate factor analysis were carried out for the interview items pertaining to child behavior (largely frequency of occurence scores) and the twenty ratings of the child made by the mother on the questionnaire at the end of the interview.

Following are the factor solutions selected to summarize the data:

A. From Interview Responses

Factor I Aggressive Resistant		Factor II Toilet Training and Bedtime Problems		Factor III Approach		Factor IV Withdraw	
*F. Temper	.63	F. Resist Potty	.57	F. Wants to play	.70	Withdraw strange peer	.54
F. Stubborn	.63	F. Goes Potty in pants	.56	F. Wants to hug	.61	Withdraw strange adult	.52
F. Hit Peer	.63	F. Resists Bedtime	.55			Cry when left with sitter	.49
F. Hit Mother	.59					Cry at bedtime	.38
F. Gets into things	.55						

*F = Frequency

B. From Questionaire Ratings

Factor I Agressive Resistant		Factor II Dependent Inhibited		Factor III Friendly Outgoing	
Disobedient	.68	Clings to Mother	.66	Cheerful	.58
Hits others	.61	Fearful	.59	Curious	.56
Temper	.56	Easily upset	.49	Talkative	.48
Stubborn	.49	Seeks Attention	.47	Friendly	.45
Whines	.45	Shy	.40	Likes to be held	.42

The intercorrelation between these sets of variables as shown in Table 4 indicate definite similarity between the two variables measuring aggressive resistant behavior but enough differences in the others to warrant keeping them separated.

TABLE 4 ABOUT HERE

Separate factor analysis were carried out for boys and girls. Although there were some differences in the order the factors emerged and the loadings of some individual items the main factor structure was very similar. In looking at differences between means for variable scores the only one to reach significance was the higher mean scores for boys on the aggressive-resistance variable.

In comparison with other studies the aggressive resistance and withdrawing-dependent patterns are of most interest because similar dimensions have been repeatedly identified in studies on school populations from kindergarten through sixth grade and clinical samples of children with behavior problems.[17,18] That these behavior patterns may be at least in part related to qualities of temperment is suggested by the work of Thomas, Chess and Birch who have identified what appear to be related behavioral patterns in infants during the first year of life (The Difficult Child and The Slow to Warm-up Child).[19]

Significantly larger scores for boys on measures of aggression is again a common finding reported by others.

Relationships Between Parent and Child Variables

Table 5 presents the intercorrelations between parent and child behavior.

TABLE 5 ABOUT HERE

Aggressive resistant behavior of the child is associated with the use of negative contact by both parents but also with the use of positive contact by the mother, ~~as well~~. The use of protection and compliance by the mother is associated with dependent inhibited behavior by the child and toilet training and bedtime problems. The father, however, appears to be reacting to both these patterns with negative contact. Finally, the friendly, outgoing approach variables are associated with the use of positive contact by both parents. Since the parent and child measures are both based on the descriptions given by the mother rather than through independent assessment these correlations may be artifacts of the contaminated design. For example, Becker reports a similar relationship between parental punitiveness and hostility and mother reports of aggressive behavior in the home with five year olds.[16]

When teacher ratings of aggressive behavior in school were used for an independent measure, the relationship still held for boys but not for girls.

Multivariate Analysis:

To assess the relative importance of different variables for use in predicting parent and child behavior patterns a multiple regression analysis was carried out.

With this method, linear combinations of independent variables are examined until that combination is found that explains the most variance of the dependent variable. For this study, combinations of 4 demographic variables, such as education, religion and social class, 7 family structure and pregnancy variables such as number of children, birth order, etc., 5 life events and past history variables such as first year behavior patterns, family health problems, etc. and 6 mother attitude variables such as self confidence, mother evaluation of the child etc were examined along with the 13 parent and child behavior variables.

The main findings from this analysis are, that at best, only about half the variance of parent-child rearing style and child behavior pattern can be explained by these combinations and no one variable is a very strong predictor.

For example the mother's use of negative contact was related to a combinations of 11 variables giving a mulitple r of .69 and explaining 47% of the variance of the variable. In inspecting the contribution of different measures to this total, the father's use of negative contact, the mother's religious affiliation and the mother's attitude about how difficult the child is to rear where all stronger predictors than any of the child behavior variables.

Similiarly, in looking at the aggressive resistant behavior pattern of the child, seven variables were combined to give a multiple r of .56 explaining 31% of the total variance.

and such variables as the birth order of the child, the child's behavior during the first year of life, and the mother's attitude that the child was difficult to rear were all better predictors than any measures of child rearing.

There was a stronger relationship between dependent inhibited behavior patterns and the mother's use of protection and compliance but even here many other variables were involved.

This lack of a strong association between child rearing and child behavior variables has been reported by others and strongly suggests than any predictor model based on some single measure of child rearing or child behavior will not be very accurate. What might be better? A "lack of fit" model as suggested by Thomas, Chess and Birch or a similar "vicious circle" model described by many others is one possibility.[7,19,20] Here the hypothesis is that knowledge of both the type of child and the parent response pattern will allow more accurate predictions than knowledge of either one alone. Tables 6 and 7 indicate how we might use such a model in this study.

TABLE 6 AND 7 ABOUT HERE

The first test of this hypothesis will be obtained when the child enters the school system and we can get an independent assessment of his or her behavior patterns from teacher ra ratings and class room observations.

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TABLE 1

SAMPLE CHARACTERISTICS I

	Study N = 198	Refusals N = 46	Total N = 244	Random Sample N = 59
Age of child	21-27 months	same		2-5 years
Sex (male)	92 (46%)	26 (57%)	118 (48%)	29 (49%)
Education (MO)				
College grad.	80 (40%)	9 (20%)	89 (36%)	15 (25%)
1-3 yrs. coll.	63 (32%)	13 (28%)	76 (31%)	13 (22%)
High sch. grad.	55 (28%)	24 (52%)	79 (32%)	31 (53%)

TABLE 2

SAMPLE CHARACTERISTICS II

	Study N = 198	Refusals N = 46	Total N = 244	Random Sample N = 59
Religion (MO)				
Catholic	79 (40%)	___		23 (39%)
Protestant	96 (48%)	___		30 (51%)
Jewish	15 (8%)	___		5 (8%)
None or other	8 (4%)	___		1 (2%)
MD Identifies child as having problem	15 (8%)	7 (15%)	22 9%	

TABLE 3

INTERCORRLEATIONS BETWEEN

MOTHER & FATHER VARIABLES

(N = 182)

Father Variables	Mother Variables		
	Neg Con	Pos Con	Prot & Comply
Neg Con	.47*	____	.29*
Pos Con	____	.28*	____
Disagree	____	____	____

** p = .01 (Pearson, two tailed)

TABLE 4

INTERCORRELATIONS CHILD BEHAVIOR VARIABLES (N = 182)

	Questionnaire		
Interview	AR	DI	F.O.
AR	.60**	.03	-.08
TT & B	.13	.16*	.00
W	.07	.31**	-.11
A	-.02	.15*	.16*

* $p < .05$ (Two Tailed)

** $p < .01$

TABLE 5

INTERCORRELATIONS BETWEEN PARENT

AND CHILD BEHAVIOR VARIABLES (N = 182)

Parent Behavior Variables	Child Behavior Variables						
	Interview				Questionnaire		
	AR	TT & B	W	A	AR	DI	FO
Neg Con (MO)	.35**	-	-.15*	-.29**	.37**	-	-
Pos Con (MO)	.17**	-	-	.41**	-	-	.28**
Prot & Comply (MO)	-	.43**	-	.18*	-	.40**	-
Neg Con (FA)	.31**	.22**	-	-	.31**	.15*	-
Pos Con (FA)	-	-	-	.17*	-	-	.15*
Disagree (FA)	-	-	-	-	-	-	-

* p = .05 ** p = .01

(Pearson, two tailed)

TABLE 6

VICIOUS CIRCLE MODEL

AGE 2 (Home Pattern)		Age 4 or 5 (School Pattern)
Aggressive-Resistant + Negative Contact	=	Aggressive-Resistant
Dependent-Inhibited + Protection & Compliance	=	Dependent-Inhibited
Friendly, outgoing + Positive Contact	=	Friendly, outgoing

TABLE 7

PREDICTING AGGRESSIVE RESISTANT

SCHOOL BEHAVIOR PATTERNS

Aggressive Resistant Behavior (I)	Negative Contact: Mother			Row Total
	Low	Medium	High	
Low	27	21	7	55
Medium	18	36	20*	74
High	12	16*	25*	53
Column Total	57	73	52	182

* = High Risk = 61